PLUS 100 PAN *CONTROL SYSTEM FOR DOUGH-RETARDES*

Use and maintenance manual

READ AND KEEP

REV. 02-15
ENG

ELECTRICAL BOARDS FOR REFRIGERATING INSTALLATIONS

Electrical Boards Pego®

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CHAPTER 1: INTRODUCTION

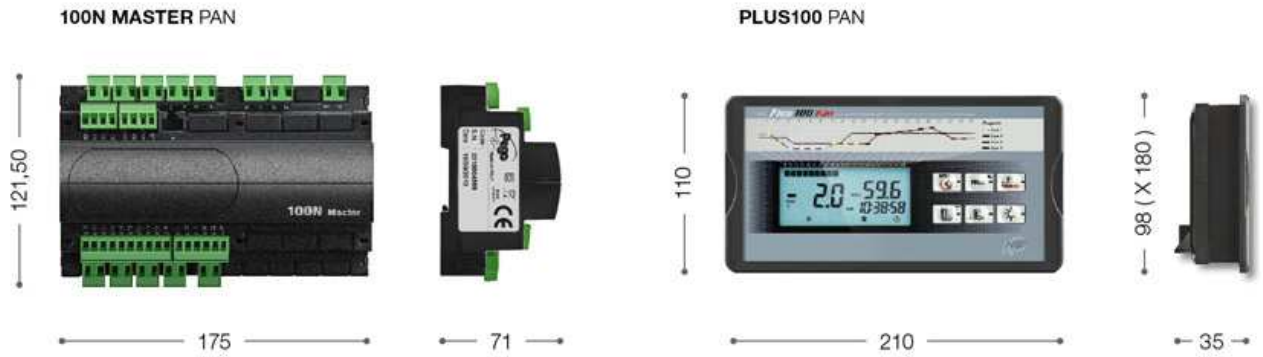
1.1 GENERAL

The PLUS 100 PAN system allows the user to control temperature and humidity. The system consists of the 100 MASTER unit, on which all the electrical connections are made, and the PLUS 100 PAN control panel, which features a large LCD display to provide rapidly available, complete information on room status. The system allows the user to cool, heat and ventilate the room, switch the room light on/off, humidify it, effect an air changeover, dehumidify it, defrost it and control alarms.

1.2 PRODUCT ID CODES

PLUS100 PAN ……. control of temperature and humidity for pause-leavening applications.

OVERALL DIMENSIONS 1.3



IDENTIFICATION DATA 1.4

The unit described in this manual has, on its side, an ID plate showing all the relevant identification data:

- Name of Manufacturer
- Code and model of electrical board
- Serial number
- IP protection rating
- Power supply voltage

CHAPTER 2: INSTALLATION

2.1 IMPORTANT INFORMATION FOR THE INSTALLER

1. Install the device in places where the protection rating is observed and try not to damage the box when drilling holes for wire/pipe seats.
2. Do not use multi-polar cables in which there are wires connected to inductive/power loads or signalling wires (e.g. probes/sensors and digital inputs).
3. Do not fit power supply wiring and signal wiring (probes/sensors and digital inputs) in the same raceways or ducts.
4. Minimise the length of connector wires so that wiring does not twist into a spiral shape as this could have negative effects on the electronics.
5. Fit a general protection fuse upstream from the electronic controller.
6. All wiring must be of a cross-section suitable for relevant power levels.
7. When it is necessary to make a probe/sensor extension, the wires must be of the correct cross-section, which in any case must be at least 1 mm^2.

2.2 STANDARD ASSEMBLY AND USE KIT

The **PLUS 100 PAN** system is supplied with the following assembly and utilisation items:

n°2 temperature sensors
n°1 fixing bracket
n°1 telephone plug lead
n°1 user's manual

CHAPTER 3: FUNCTIONS

3.1 FUNCTIONS CONTROLLED BY THE PLUS 100 PAN

- Display and adjustment of temperature and humidity settings (neutral zone).
- Activation/deactivation of stand-by mode.
- Sensor alarm/warning signals.
- Adjustment of differential temperature and humidity parameters.
- Adjustment of air changeover control parameters.
- Adjustment of defrosting parameters.
- Adjustment of fan parameters.
- Display of output status.
- Simultaneous display of temperature and humidity values.
- Automatic program management with automatic variation of temperature and humidity settings over time.
- Clock function

CHAPTER 4: TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS 4.1

Power supply		
Voltage	230 V~ ± 10% 50 Hz	
MAX power absorption	~ 8 VA	
Climatic conditions		
Working temperature	-10 - 60°C	
Storage temperature	-30 - 70°C	
Relative humidity	below 90% RH	
Input characteristics		
Analogical inputs	NTC 10K 1% 4…20 mA	Temperature sensor Humidity sensor
Read resolution	1°C 1 RH%	Temperature Humidity
Sensor read precision	± 0.5 °C see characteristics of humidity sensor	
Read range	-45…+45 °C 0…99 RH%	
Output characteristics		
Outputs on relay	1 output on terminal N.A. 30A (AC1) 230 V AC 9 outputs on terminal N.A. 16A (AC1) 230 V AC	
Dimensional characteristics		
100 MASTER box dimensions (mm)	121,5 x 71 x 175	(HxDxL)
PLUS PAN keypad box (mm)	98 x 35 x 180	(HxDxL)
Insulation characteristics		
Keypad protection rating	IP55	

4.2 WARRANTY CONDITIONS

PLUS 100 electronic controllers are covered by a 24-month warranty against all manufacturing defects, valid from date of delivery. If the system malfunctions as a result of tampering, impact or improper installation the warranty will automatically be rendered null and void. It is strongly recommended that you observe all instructions/information regarding the technical characteristics of the device.

WARNING !

Any modifications made to wiring and/or internal components or any tasks carried out in a way that fails to comply with the information/instructions in this manual shall not only render the warranty null and void immediately but may also lead to malfunctions, irreparable damage, serious injury or put persons/objects in danger.

PEGO S.r.l. declines any responsibility for possible errors or inaccuracies written in this manual as a result of printing or transcription errors.
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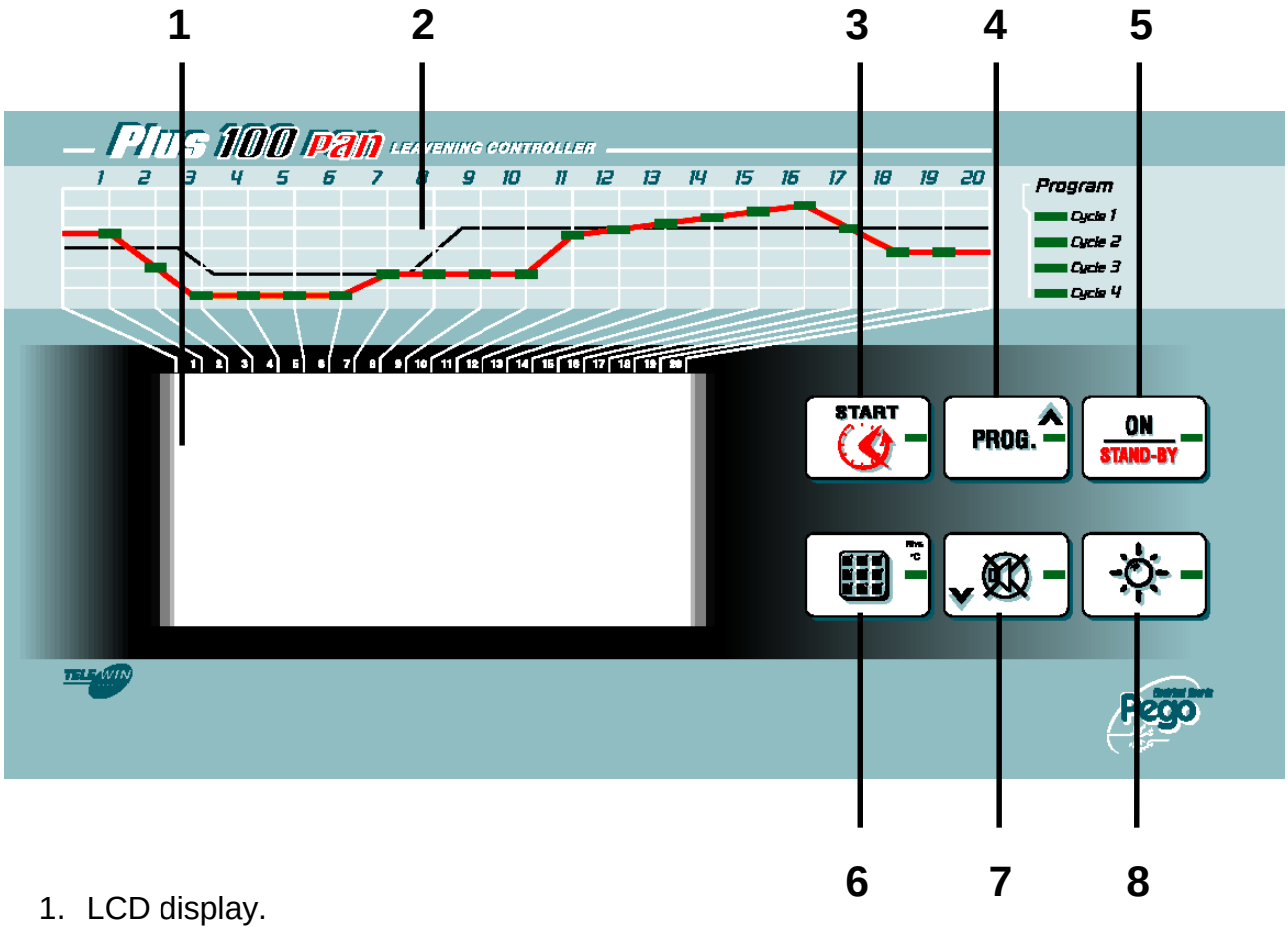
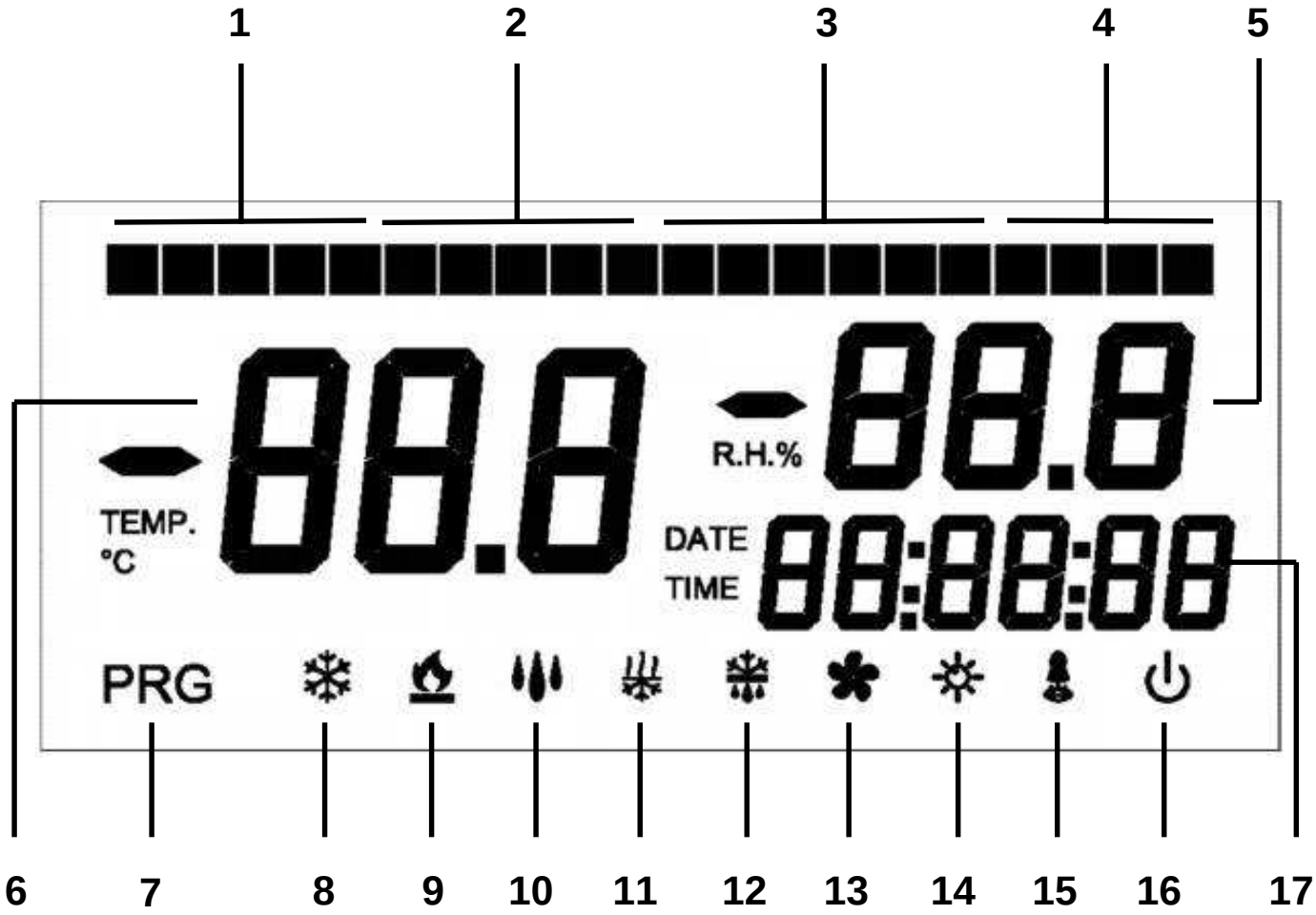
CHAPTER 5: PARAMETER PROGRAMMING

CONTROL PANEL 5.1



1. LCD display.
2. Automatic cycle progress bar.
3. Cycle START/STOP (hold for a few seconds to start or stop an automatic cycle) / Timer (press once to show day and time of end of cycle in progress).
4. UP (**Automatic cycle programming**).
5. Stand-by (system at standstill, does not interrupt cycle in progress).
6. SET temperature / SET humidity (press successively to alternate temperature and humidity).
7. DOWN, **forced defrosting**, alarm mute.
8. Room light.

5.2 LCD DISPLAY



1. Progress of PHASE 1 (**cooling** duration set by final user, physically occupies sectors n° 1, 2, 3, 4, 5).
2. Progress of PHASE 2 (**maintenance,** so-called elastic phase, physically occupies sectors n° 6, 7, 8, 9, 10).
3. Progress of PHASE 3 (**leavening,** duration set by final user, physically occupies sectors n° 11, 12, 13, 14, 15, 16).
4. Progress of PHASE 4 (**product ready settling**, max. duration 4 hours, occupies the last sectors n° 17, 18, 19, 20).
5. Relative ambient humidity / parameter values / error codes.
6. Ambient temperature / parameter values.
7. Programming (controller is in programming mode).
8. Cooling (flashes if called for dehumidification only).
9. Heating (flashes if called for dehumidification only).

10. Humidification.
11. Dehumidification.
12. Defrosting.
13. Evaporator fans (both high and low speed).
14. Light.
15. Alarm.
16. Stand-by (light on continuously - controller ON, light flashing, controller in STAND-BY).
17. Time / date / time parameter values.

5.3 GENERAL

To enhance safety and simplify the operator's work, the ***PLUS 100 PAN system*** has two programming levels; the first level (Level 1) is used to configure the frequently-modified SET-POINT parameters. The second programming level (Level 2) is for general parameter programming of the various controller work modes.
It is not possible to access Level 2 programming directly from Level 1: you must exit the programming mode first.

5.4 KEY TO SYMBOLS

For purposes of practicality the following symbols are used:
• **(▲)** the UP key is used to increase values and in **programming the cycles**;
• **(▼)** the DOWN key is used to decrease values and mute the alarm.

5.5 SETTING AND DISPLAYING THE SET-POINTS

1. Press the **SET key** to display the current **SET-POINT** (temperature or humidity).
2. Hold down the **SET key** and press the **(▲)** or **(▼)** keys to modify the **SET-POINT**.
3. Release the **SET key** to return to room temperature display: the new setting will be saved automatically.

LEVEL 1 PROGRAMMING (User level) 5.6

To gain access to the Level 1 configuration menu proceed as follows:

1. Press the **(▲)** and **(▼)** keys simultaneously and keep them pressed for a few seconds until the first programming variable appears on the display.

2. Release the **(▲)** and **(▼)** keys.

3. Select the variable to be modified using the **(▲)** or **(▼)** key.

4. When the variable has been selected it is possible:

• Display the setting in the respective sector of the display (5 or 17 page 11)

• To modify the setting by pressing the SET key and the **(▲)** or **(▼)** keys.

When configuration values have been set you can exit the menu by pressing the **(▲)** and **(▼)** keys simultaneously for a few seconds until the room temperature reappears; alternatively, do not press any key for a few seconds.

5. The new settings are saved automatically when you exit the configuration menu.

5.7 LIST OF LEVEL 1 VARIABLES (User level)

LABEL	MEANING	RANGE	DEFAULT
d-t	**Temperature difference** compared to main SET-POINT	1÷10 °C	2°C
d-U	**Differential for Humidification** compared to main SET-POINT	1÷10 rH%	5 rH%
d-d	**Differential for Dehumidification** compared to main SET-POINT	1÷10 rH%	5 rH%
d0	Air changeover interval **(parameter only active during the leavening phases)**	00…24 hours	0:00
d1	Air changeover duration **(parameter only active during the leavening phases)**	1….60 min	6 min
d4	Defrosting interval, **interval between one defrosting and the next** d4=0 no defrosting. **(parameter only active during cooling and maintenance stages**	0..24 hours	8 hours
d5	**Max defrost duration** time	1..60 min	20 min
d6	**End of defrosting temperature SET-POINT**. Defrosting is not executed if the temperature read by the defrosting sensor is higher than the end of defrosting setting. (in the event of a faulty sensor defrosting is timed)	-35 ÷ 45 °C	12°C
F5	**Fan stop** time (Expressed in minutes) At the end of defrosting the fans can be kept at standstill for a further set time. This time begins at the end of defrosting **(parameter active only in the cooling and maintenance phases)**	0 - 10 min’	2 min
F6	Fan shutdown temperature. (Expressed in °C.) At the end of defrosting or at start-up the fans can be kept at standstill until the evaporator sensor temperature setting is reached. **(parameter active only in the cooling and maintenance phases)**	-20 ÷ 30 °C	23 °C
tEu	Defrosting sensor temperature display **(evaporator)**	--	Read only
DMy	**Current date**	dd:mm:yy	
HMS	**Current time**	0:00 .. 23:59 hh:mm	

LEVEL 2 PROGRAMMING (Installer level) 5.8

To access the second programming level press the UP **(▲)** and DOWN **(▼)** keys and the LIGHT key simultaneously for a few seconds.

When the first programming variable appears the system automatically goes to stand-by.

1. Select the variable to be modified by pressing the UP **(▲)** and DOWN **(▼)** keys.

When the parameter has been selected it is possible to:

2. View the setting in the respective sector of the display (5 or 17, page 11).

3. Modify the setting by holding the SET key down and pressing the **(▲)** or **(▼)** key.

4. When configuration settings have been completed you can exit the menu by pressing the **(▲)** and **(▼)** keys simultaneously and keeping them pressed until the room temperature value reappears.

Exit from Level 2 is not automatic, even if keys are left untouched for a long time.

5. Changes are saved automatically when you exit the configuration menu.

6. To enable the electronic controller press the STAND-BY key

.

5.9 LIST OF LEVEL 2 VARIABLES (Installer level)

LABEL	MEANING	RANGE	DEFAULT
AC	**Door switch** input status	0= NO 1= NC	0
C1	Minimum time between **compressor** shutdown and subsequent switching on	0...15 min	0 min
Ad	**Network address** for connection to the TeleNET system	0÷31	0
dEU	**Dehumidification mode** select. Separate dehumidification calls heat/cold by temperature only	0= cooling 1=heating 2= separated dehumid.	2
EnU	**Humidification enable**	1= enabled 0= disabled Humidification control only executed during leavening and settling phases.	1
End	**Dehumidification enable**	1= enabled 0= disabled Humidification control only executed during leavening and settling phases.	1
CAt	**Ambient sensor** value correction	-10…+10 °C	0 °C
CAU	**Humidity sensor** value correction	-20…+20 rH%	0 rH%
St1	First leavening step temperature set-point	0…+45 °C	5 °C
SU1	First leavening step humidity set-point	50…99 rH% (50%=humidity not controlled)	85 rH%
t1	First leavening step duration hh:mm	00:00…2:00 hh:mm	00:30
St2	Second leavening step temperature set-point	0…+45 °C	10 °C
SU2	Second leavening step humidity set-point	50…90 rH% (50%= humidity not controlled)	80 rH%
t2	Second leavening step duration hh:mm	00:00…2:00 hh:mm	00:30
St3	Third leavening step temperature set-point	0…+45 °C	16 °C
SU3	Third leavening step humidity set-point	50…99 rH% (50%= humidity not controlled)	80 rH%

t3	Third leavening step duration hh:mm	00:00…2:00 hh:mm	00:30
St4	Fourth leavening step temperature set-point	0…+45 °C	16 °C
SU4	Fourth leavening step humidity set-point	50…99 rH% (50%= humidity not controlled)	80 rH%
t4	Fourth leavening step duration hh:mm	00:00…2:00 hh:mm	00:00
St5	Fifth leavening step temperature set-point	0…+45 °C	16 °C
SU5	Fifth leavening step humidity set-point	50…90 rH% (50%= humidity not controlled)	80 rH%
t5	Fifth leavening step duration hh:mm	00:00…2:00 hh:mm	00:00
Hr	Humidity control	Hr = 1 humidity control enabled Hr= 0 humidity control disabled. Humidity sensor can be disconnected without error, the display shows evaporator sensor instead of humidity (if dE=0)	1
dE	Evaporator sensor exclusion	0 = sensor present 1 = sensor absent	0
EnC	Enables cold (cooling) during manual, automatic leavening and settling.	0 = cold disabled 1 = cold enabled	1
Str	Settling phase temperature set-point	0…+45 °C	12 °C
SUr	Settling phase humidity set-point	50…99 rH%	80 rH%
d9	Defrost enable during cooling	0 = defrosting disabled 1 = defrosting enabled	0

CHAPTER 6: USING THE UNIT

6.1 COLD/HEAT: MAINTAINING AMBIENT TEMPERATURE

Heating/cooling is neutral-zone controlled on the basis of the temperature set-point (key 6) and the temperature differential (parameter d-t).

Cooling is activated when the set + differential threshold is passed and stays on until the set-point is reached.

Heating is activated when the setting – differential threshold is reached and stays on until the set-point is reached.

6.2 HUMIDIFICATION/DEHUMID.: MAINTAINING AMBIENT HUMIDITY

Humidity and dehumidification are neutral-zone controlled during the leavening, maintenance and settling phases only, and only if the programmed set-point is greater than the settable minimum ***(50%)** on the basis of the humidity set-point (key 6) and the differential for Humidification (parameter d-U) and differential for Dehumidification (parameter d-d).

Humidification is activated below the **set – differential for Humidification (parameter d-U)** threshold and stays on until the set-point is reached.

Dehumidification is activated above the **set + differential for Dehumidification (parameter d-d)** threshold and stays on until the set-point is reached.

Humidity control can be disabled via the Hr (relative humidity) parameter, or by setting the set point to the minimum R.H.% 50 = humidity control disabled (display only).

Dehumidification alone be disabled via the End parameter.

Humidification alone can be disabled via the EnU parameter.

There are three dehumidification modes (dEU parameter):

1. Dehumidification with cooling (cold is called to dehumidify, heat is added only to maintain ambient temperature).
2. Dehumidification with heating (heat is called to dehumidify, cold is added only to maintain ambient temperature).

   If the difference in temperature is, with respect to the setting, greater than 5°C (during dehumidification with the compressor and elements) 5°C, the unit with the

greater value shuts down to prevent any overheating or over-cooling which could damage the product.

3. Separated dehumidification (dehumidification output activated only but without cold/heat call).

(*) if the humidity set point is set to the minimum (50%) neither dehumidification nor humidification are controlled

VENTILATION 6.3

Fan speed is regulated by two digital outputs (high/low speed) and run at high speed with the cold call during the cooling and maintenance phases and continuously at low speed during the leavening and settling phases.
Fans are always off during defrosting.
Variants can be controlled via parameters F5 and F6.

AIR CHANGEOVER 6.4

Air changeover is controlled via parameters d0 and d1.
Use d0 to establish the interval between one air changeover and another: the counter starts its count from zero at the start of every manual or automatic leavening cycle. If d0 = 00 no air changeover is carried out.
Use d1 to establish the duration of the air changeover.
Cooling, heating, humidification and dehumidification are not activated during air changeover.

CLOCK / CALENDAR 6.5

Current time and date can be adjusted via the dMY and HMS parameters.
The current time is shown on the LCD display.

MANUAL CYCLES 6.6

The controller recognises the manual cycles (only hot or only cold) from the temperature setting only when in stop mode, not in stand-by.

If the set-point is less than or equal to 10°C the controller recognises the manual cold cycle. It will consequently run the fans simultaneously with the compressor call and execute the programmed defrosts as per the parameter settings; humidity control will not be executed.

If the set-point is higher than 10°C the controller recognises the manual hot cycle. Consequently the fans are run continuously, humidity is controlled according to the RH% setting and the defrost cycles are not executed.

6.7 AUTOMATIC CYCLES

It is possible to set four automatic pause-leavening cycles each with fully independent automatic programmed leavening, and a maintenance-only cycle (riC 0) with cooling start. The four cycles have the following characteristics: cycle n°1 is carried out the same day (12 hrs); cycle n°2 is for the next day (24 hrs); cycle 3 for the second successive day (48 hrs); and cycle 4 for the third successive day after the (72 hrs).

To enter the recipes programming mode press key 4

until the letters **riC** appear on the temperature display and the numbers **01 … 04** on the RH% display. Use keys 4

and 7 to select the recipe to be programmed, press key 3

to enter programming mode for the selected recipe. The 20 segments at the top of the unit should all be off: only one of the first four will remain on to remind you of the recipe you are programming. To program the data proceed as follows:

1. Use the **(▲)** or **(▼)** key to select the variable to be modified. After selecting the desired variable it will be possible to:

2. View the value on the respective sector of the display (5 or 17 page 11).

3. Modify the setting by pressing or maintaining the SET key and pressing the **(▲)** or **(▼)** key.

Exit programming mode [from the product ready day window (LI6)] by keeping key 4

pressed for 2 seconds; in any case the unit will exit programming mode if no keys are touched for 30 seconds.

CYCLE PROGRAMMING DATA:

DISPLAY TEMP.	DISPLAY RH%	DISPLAY TIME	Default recipe 1	Default recipe 2
AC1	Cooling temperature -20°C…..0°C.	Off	-7	-10
AC2	Off	Cooling time 00:00:00….29:59:00	04:00:00	05:00:00
Co1	Maintenance temperature -5°C…..15°C.	Off	-2	-4
Co2	Hr% Maintenance 50%….99.0%	Off	50	50
Li1	Final leavening temp. 10°C…..+45°C.	Off	27	30
Li2	Off	Leavening duration t1+t2+t3+t4+t5..09:59:00	04:00:00	05:00:00
Li3	Final leavening RH% 50%….99.9%	Off	80	85
Li4	Off	Product ready time 00:00….23:59:00	02:00:00	02:30:00
Li5	End-of-cycle settling 1=Yes …. 0=No	Off	0	0
Li6	Off	Product ready day 01:01:04….31:12:99 (**read only**)	/	/

N.B. the 00 cycle is dedicated to a cool-only cycle that consists of an initial cooling phase followed by a switch to maintenance for an indefinite period; the programmable data items for this recipe are therefore **AC1; AC2; Co1; Co2.**

Once programming has been completed you can start a cycle by pressing key 3

for a few seconds. The display asks which recipe is to be used (riC 00 … riC 04). Select the desired recipe via the up/down keys: when key 3

is pressed again the product ready (oven-ready) time and day are displayed for 5 seconds. If the shown data is correct there is no need to carry out any further tasks and the controller makes subsequent checks and then starts the cycle. If, however, the data is incorrect stop the cycle by pressing key 3

, enter the recipe, modify the incorrect data and restart the cycle.

The controller makes a quick calculation to see if the cycle duration time is compatible with the “product ready” time and day. If everything is compatible the cycle begins and the first segment lights up. If, instead, there are incompatibilities the controller goes to stand-by, the buzzer sounds and the **EP** message appears on the display to

indicate erroneous programming. To switch off the buzzer press key 7 . The progress of the cycle is highlighted at the top of the unit as follows:

Phase 1: cooling n° 5 segments;

Phase 2 maintenance n° 5 segments;

Phase 3 leavening n° 6 segments;

Phase 4 settling (where enabled) n° 4 segments.

If a settling phase is enabled sector 19 will light up at the cycle **START** to remind the user that, when the product ready time is reached, the cycle will be completed by a settling phase. It goes off at the start of the settling phase (i.e. when segment n° 17 lights up).

While a complete cycle is being carried out the number of the recipe **"riC 01"** can be viewed on the RH% display and the baking day/time displayed alternately on the clock display (17) for a few seconds by pressing key 3

briefly. While a complete cycle is in progress you can view and modify the recipe in use by pressing key 4

for 2 seconds: you can vary temperature and humidity **but not the duration times of the different stages.**

At the end of the final leavening cycle (if settling is not enabled) the controller goes to stand by. The buzzer sounds and the segment bar flashes to indicate that the cycle is over. Buzzing/flashing stops automatically after 1 minute or when key 7 is pressed.

The user can vary temperature and humidity set-points alternately at any time during the active cycle (manual heat/cool cycles included) via key 6 : note, however, that during a complete cycle variation of the set-point is relative to the phase in progress.

The first phase is known as cooling (cold is produced and "accumulated"). If the recipe has a cooling time of 0:00 the controller immediately goes to the maintenance phase at the start if the cycle.

There then follow: maintenance, intermediate leavening, final leavening and (where enabled) settling.

N.B. the end of the cycle (Li4 - product ready time) is defined by the end of the final leavening phase, <u>not</u> the settling cycle.

The cooling phase is characterised by:

- Temperature set-point
- Duration of the phase

The maintenance phase is characterised by:

- Temperature set-point
- Humidity set-point

The leavening phase is characterised by:

- Temperature set-point
- Humidity set-point
- Duration of the intermediate leavening phases via 2nd level parameters and overall leavening duration programmed by final user. N.B. overall leavening duration can never be less than the sum of the 5 parameter-programmed steps.

The settling phase is characterised by:

- Duration in hours (2nd level parameter)
- Temperature set-point (2nd level parameter)
- Humidity set-point (2nd level parameter)

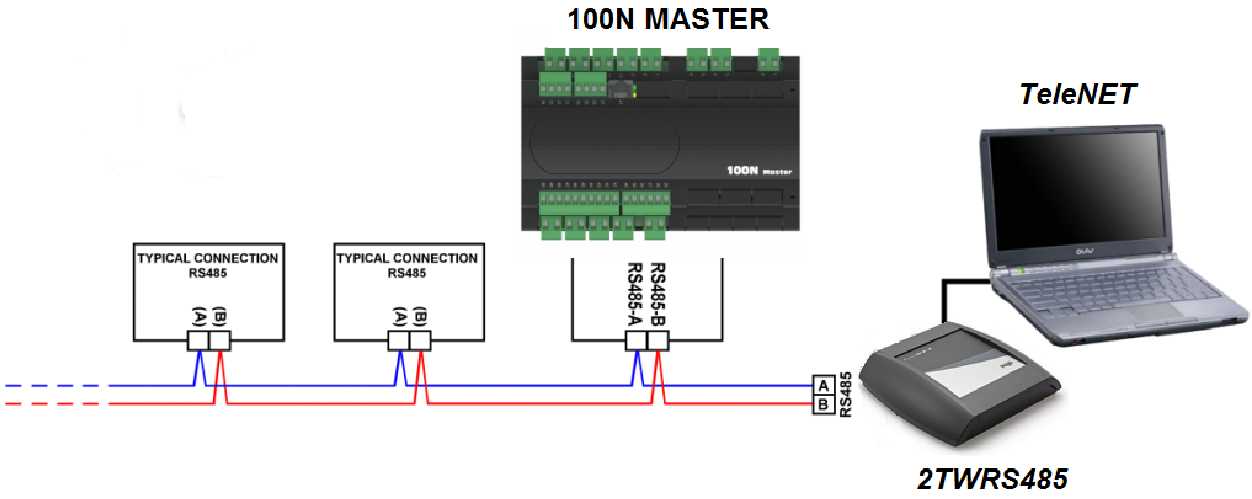
If a phase has time 0, it is not executed and the controller goes to the next phase.
Phase times continue even in the event of an electrical power failure or controller stand-by.
When an automatic cycle is in progress it is possible to check the number of the cycle in use and the in-oven day / time by briefly pressing key 3

(CYCLE START); sector 17 of the display (DATE TIME) shows first day and then time.

Supervision/monitoring system TeleNET 6.8

The ***TeleNET*** supervision system allows the user to create a historical room temperature and humidity database via Personal Computer.

To configure the instrument, refer to the ***TeleNET*** manual.



Assign the PLUS 100 PAN system address via the configuration sequence by selecting the **Ad** label from the 2nd programming level (installer level) and following the normal address attribution criteria used for ***TeleNET***.

Temperature as detected by the controller can be displayed at the ***TeleNET*** address **Ad+1** by setting the module as TWMT (temperature acquisition module).

In this way the ***TeleNET*** supervision program can simultaneously display temperature and relative humidity as measured by the PLUS 100 PAN and build up a record of both parameters.

Example: if parameter **Ad** is set to **3**, relative humidity can be displayed on the ***TeleNET*** by assigning the TWMUR module to address 3; temperature can be displayed by assigning address 4 (obtained by summing one to the parameter Ad=3) as the TWMT module.

N.B. The address Ad+1 can, in any case, be used by any device connectable to the ***TeleNET*** (in place of PLUS 100 PAN temperature display) except for TWMT modules to which a different address must be assigned so as to avoid any conflict.

CHAPTER 7: TROUBLESHOOTING

7.1 ALARMS: DESCRIPTION AND PROCEDURES

In the event of any anomalies the PLUS 100 PAN system warns the operator by displaying alarm codes and sounding the warning buzzer inside the control panel. If an alarm is tripped the display will show one of the following messages:

ALARM CODE	POSSIBLE CAUSE	PROCEDURE TO BE FOLLOWED
E0	Temperature sensor not working properly (stops the system)	• Check the temperature sensor • If the problem persists contact the technical assistance service
E1	Humidity sensor not working properly (stops humidity control)	• Check the humidity sensor • If the problem persists contact the technical assistance service
E2	Evaporator sensor not working properly (defrostings scheduled)	• Check the evaporator sensor • If the problem persists contact the technical assistance service
E3	EEPROM ALARM EEPROM memory error detected. (all outputs deactivated)	• Switch off unit and switch back on • If the problem persists change the control board
E4	Software compatibility error	• Check for correct match between MASTER board and control panel board
E6	Flat battery	• Contact the technical assistance service to have the battery replaced
EC	Compressor safeguard (e.g. overheat or excess pressure). (Compressor and dehumidification output deactivated if parameter dEU = 0 or 1)	• Check compressor status • Check compressor absorption • If the problem persists contact the technical assistance service
En	No connection between control panel and control board	• Check connections between the two units • Check for presence of ferrite on sensors • If the problem persists contact the technical assistance service
EP	Erroneous recipe programming (goes to stand-by)	• Check recipe duration with product-ready time and day at the moment of cycle START.

EU	Humidifier alarm (relevant output does not deactivate)	• Check specific alarm type on humidifier control.
EF	Fan overheat safety device (relevant output not deactivated)	• Check fan absorption • If the problem persists contact the technical assistance service

TROUBLESHOOTING GUIDE 7.2

PROBLEM	PROBABLE CAUSE	PROCEDURE TO BE FOLLOWED
The Control Panel does not respond and the display is blank	Power supply fault (check connection lead to control board). Control board power supply not connected. Incorrect connection between Control Panel and Control Board (Panel power supply probably inverted with RS-485 signal)	• Check that power arrives at the Panel and/or Control Board terminals. • Check connections between Control Panel and Control Board. • If the problem persists contact the technical assistance service.
The Control Panel does not respond and the display reads En	Incorrect connection between Control Panel and Control Board. Connection between Control Panel and Control Board interrupted	• Invert RS-485 signal lead connection. • Check connections for continuity.
The PLUS 100 PAN system generates false alarms	Sensor(s) connected incorrectly or faulty	• Check all connections. • Check Control Board connection leads for continuity. • If the problem persists contact the technical assistance service.
The humidity sensor does not display the correct humidity value	Sensor is not connected properly. Correct type of humidity sensor not selected.	• Check that sensor is working properly and that connection is correct.
The PLUS 100 PAN system does not respond to the parameters set on the configuration	Incorrect parameter settings	• Check the system configuration settings.

The PLUS 100 PAN system does not dialogue with the TeleNET	Connection of PLUS 100 PAN system to the TeleNET module network has not been made correctly	• Check the connection to the TeleNET network. • Check attributed address.

APPENDICES

A.1 *CE DECLARATION OF CONFORMITY*

COSTRUTTORE / MANUFACTURER

PEGO S.r.l. Via Piacentina, 6/b 45030 Occhiobello (RO) – Italy –
Tel. (+39) 0425 762906 Fax. (+39) 0425 762905

DENOMINAZIONE DEL PRODOTTO / NAME OF THE PRODUCT

MOD.: PLUS 100 PAN

IL PRODOTTO E' CONFORME ALLE SEGUENTI DIRETTIVE CE:
THE PRODUCT IS IN CONFORMITY WITH THE REQUIREMENTS OF THE FOLLOWING EUROPEAN DIRECTIVES:

Direttiva Bassa Tensione (LVD):	**2006/95/CE**
Low voltage directive (LVD):	***EC/2006/95***
Direttiva EMC:	**2004/108/CE**
Electromagnetic compatibility (EMC):	***EC/2004/108***

LA CONFORMITA' PRESCRITTA DALLA DIRETTIVA E' GARANTITA DALL'ADEMPIMENTO A TUTTI GLI EFFETTI DELLE SEGUENTI NORME (comprese tutte le modifiche):
THE CONFORMITY WITH THE REQUIREMENTS OF THIS DIRECTIVE IS TESTIFIED BY COMPLETE ADHERENCE TO THE FOLLOWING STANDARDS (including all amendments):

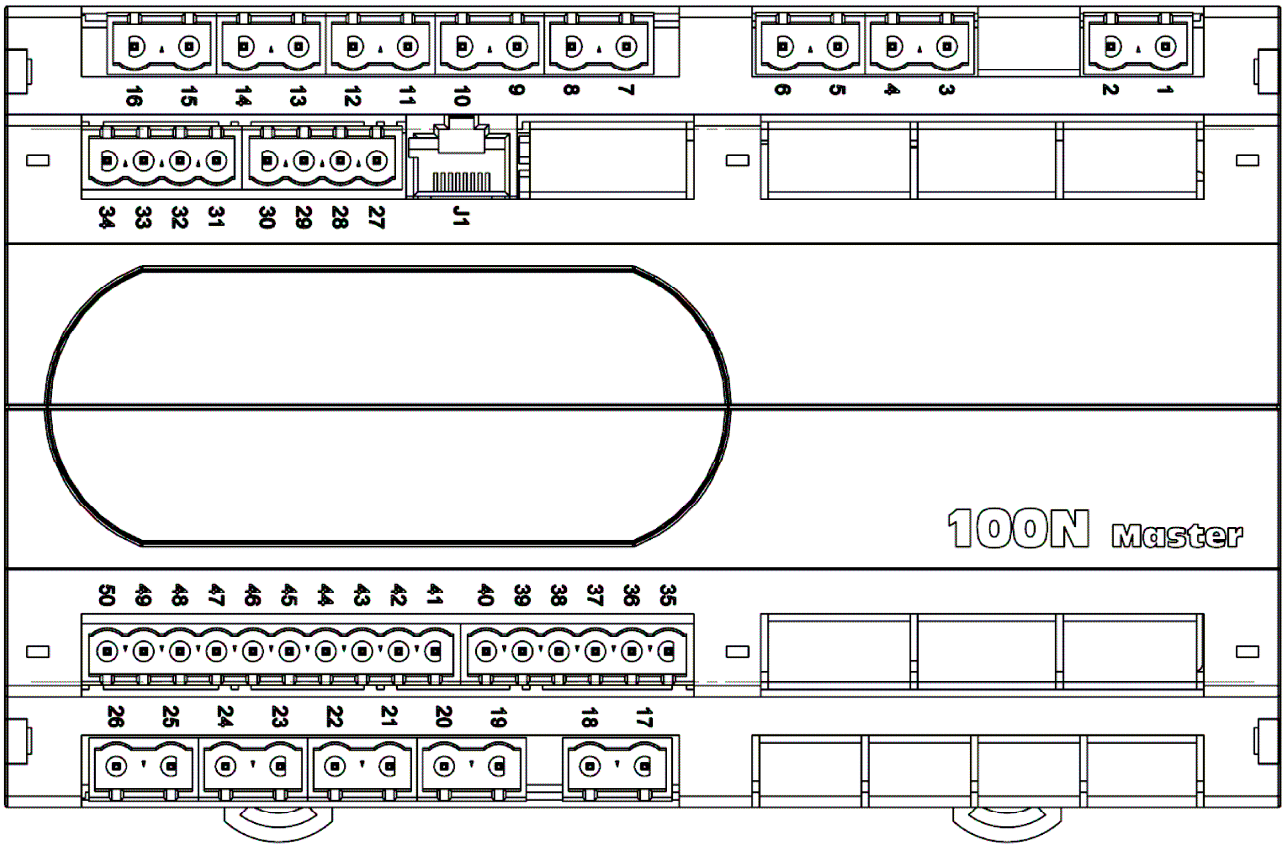
Norme armonizzate:	**EN 60730-1, EN 60730-2-9, EN 61000-6–1, EN 61000-6–3**
European standards:	***EN 60730-1, EN 60730-2-9, EN 61000-6–1, EN 61000-6–3***

IL PRODOTTO E' COSTITUITO PER ESSERE INCORPORATO IN UNA MACCHINA O PER ESSERE ASSEMBLATO CON ALTRI MACCHINARI PER COSTITUIRE UNA MACCHINA CONSIDERATE DALLA DIRETTIVA: 2006/42/CE "Direttiva Macchine".
THE PRODUCT HAS BEEN MANUFACTURED TO BE INCLUDED IN A MACHINE OR TO BE ASSEMBLED TOGHETER WITH OTHER MACHINERY TO COMPLETE A MACHINE ACCORDING TO DIRECTIVE: EC/2006/42 "Machinery Directive".

Paolo Pegorari

PLUS100 PAN CONNECTIONS DIAGRAM

A.2



Power section

1-2 Power supply 230VAC 50/60 Hz

Analogic inputs section

29-30 Evaporator sensor NTC

31-32 Humidity sensor 4..20 mA (0-100Rh%) (32=V+ 31=Y)

27-28 Ambient sensor NTC

Digital inputs section

44-50 Fan overheat safety device

43-50 Humidifier alarm

42-50 Switch door

41-50 Compressor safety device

Outputs section (free-voltage contacts)

21-22 Alarm

23-24 Defrost

25-26 Dehumidification / air changeover

15-16 Stand-by

13-14 Humidification

11-12 Room light

9-10 Evaporator fans low speed (*)

7-8 Evaporator fans high speed (*)

5-6 Heat

3-4 Cold

TeleNET section:

39 *A line on 2TWRS485*

40 *B line on 2TWRS485*

(*)High speed: terminals 7-8 close, terminals 9-10 open
Low speed: terminals 7-8 open, terminals 9-10 close.

NOTES

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